



Docket No.: CHNT-0011P1

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Arthur M. BROWN, Eckhard FICKER and Barbara A. WIBLE

Serial No.: 10/635,010

Filed: August 6, 2003

For: HIGH THROUGHPUT ASSAY SYSTEMS AND METHODS FOR IDENTIFYING
AGENTS THAT ALTER SURFACE EXPRESSION OF INTEGRAL MEMBRANE
PROTEINS

:
:
: Group Art Unit: 1645
:
: Examiner: Unassigned
:
: Customer No.: 34610
:

INFORMATION DISCLOSURE STATEMENT

U.S. Patent and Trademark Office
2011 South Clark Place
Customer Window
Crystal Plaza Two, Lobby, Room 1B03
Arlington, Virginia 22202

Sir:

Pursuant to 37 C.F.R. 1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO-1449. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the indicated date. Applicant reserves the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered. This statement should not be construed as a representation that a search has been made, that information cited in the statement is considered to be and/or is material to patentability, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith. It is further understood that the Examiner will consider information that was cited or submitted to the U.S. Patent and Trademark Office in a prior application relied on under 35 U.S.C. §120. 1138 OG 37, 38 (May 19, 1992).

- X 1. This Information Disclosure Statement is being filed (i) within three months of the U.S. filing date of a U.S. application other than a CPA continued prosecution application under §1.53(d) OR (ii) within three months of the date of entry of the national stage as set forth in §1.491 in an international application OR (iii) **before the mailing date of a first Office Action on the merits**. No certification or fee is required. 37 C.F.R. §1.97(b).
- 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application. 37 C.F.R. §1.97(c).
- a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. 1.97(e)(1).

- b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. 1.97(e)(2).
- c. Attached is our check no. _____ in the amount of \$180.00 in payment of the fee under 37 C.F.R. 1.17(p). Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached.
- 3. This Information Disclosure Statement is being filed after the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application, but on or before payment of the Issue Fee. Attached is our check no. ____ in the amount of \$180.00 in payment of the fee under 37 C.F.R. 1.17(p). Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached. 37 C.F.R. §1.97(d).
- a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. 1.97(e)(1).
- b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. 1.97(e)(2).
- X 4. Copies of the references were cited by or submitted to the Office in parent application No. 10/619,184, filed July 15, 2003, which is relied upon for an earlier filing date under 35 U.S.C. §120. Thus, copies of these references are not attached. 37 C.F.R. §1.98(d).
- X 5. To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
FLESHNER & KIM, LLP

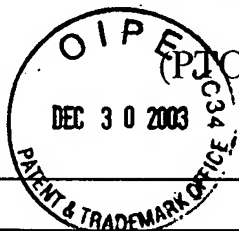


Donald R. McPhail
Registration No. 35,811

P.O. Box 221200
Chantilly, Virginia 20153-1200
703 502-9440
Date: December 30, 2003

DRM:dep

Please direct all correspondence to Customer Number 34610

LIST OF PRIOR ART CITED BY
APPLICANT

(PTO-1449)

ATTY. DOCKET NO.
CHNT-0011P1APPLN. SERIAL NO.
10/635,010APPLICANT(S)
**Arthur M. BROWN, Eckhard FICKER and
Barbara A. WIBLE**

CUSTOMER NO. 34610

FILING DATE
August 6, 2003GROUP
1645

U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	*PATENT NO.	*ISSUE DATE	*INVENTOR NAME	CLASS	SUBCLASS	FILING DATE
	4,202,896	05/13/80	GOOTJES	424	250	12/14/77
	4,476,129	10/09/84	GOOTJES et al.	424	250	06/29/83
	4,874,765	10/17/89	LAPIS et al.	514	255	04/22/87
	6,187,802 B1	02/13/01	CHEETHAM et al.	514	370	09/14/99

U.S. PATENT APPLICATION PUBLICATIONS

	*PATENT APPLN. PUB. NO.	*PUB. DATE	*APPLICANT	CLASS	SUBCLASS	

U.S. PATENT APPLICATIONS

	*APPLN. NO.	*FILING DATE	*INVENTOR	CLASS	SUBCLASS	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						Yes	No
	WO 91/01732	02/21/91	WIPO				
	WO 98/18368	05/07/98	WIPO				
	0 243 903 B1	11/04/87	European Patent Office			Claims Only	

OTHER ART (Including Author, Title, Date, Pertinent Pages, Publisher, Place of Publication, Etc.)

	C. Funck-Brentano, "Rate-dependence of class III actions in the heart," Fundam. Clin. Pharmacol., 1993, Vol. 7, pp. 51-59.
	Weimin Tang et al., "Development and Evaluation of High Throughput Functional Assay Methods for hERG Potassium Channel, Journ. of Biomolecular Screening, Vol. 6, No. 5, 2001, pp. 325-331.
	Jia Xu et al., "Ion-channel assay technologies: quo vadis?" DDT, Vol. 6, No. 24, December 2001, pp. 1278-1287.
	André Collioud et al., "Oriented and Covalent Immobilization of Target Molecules to Solid Supports: Synthesis and Application of a Light-Activatable and Thiol-Reactive Cross-Linking Reagent," Bioconjugate Chem., Vol. 4, 1993, pp. 528-536.
	Lutz Schmitt et al., "Specific Protein Docking to Chelator Lipid Monolayers Monitored by FT-IR Spectroscopy at the Air-Water Interface, Angew. Chem. Int. Ed. Engl., Vol. 35, No. 3, 1999, pp. 317-320.

EXAMINER

DATE CONSIDERED

LIST OF PRIOR ART CITED BY APPLICANT

(PTO-1449)



ATTY. DOCKET NO.
CHNT-0011P1

APPLN. SERIAL NO.
10/635,010

APPLICANT(S)
**Arthur M. BROWN, Eckhard FICKER and
Barbara A. WIBLE**

CUSTOMER NO. 34610

FILING DATE
August 6, 2003

GROUP
1645

U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	*PATENT NO.	*ISSUE DATE	*INVENTOR NAME	CLASS	SUBCLASS	FILING DATE

U.S. PATENT APPLICATION PUBLICATIONS

	*PATENT APPLN. PUB. NO.	*PUB. DATE	*APPLICANT	CLASS	SUBCLASS	

U.S. PATENT APPLICATIONS

	*APPLN. NO.	*FILING DATE	*INVENTOR	CLASS	SUBCLASS	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						Yes	No

OTHER ART (Including Author, Title, Date, Pertinent Pages, Publisher, Place of Publication, Etc.)

	Wolfgang Schuhmann et al., "Immobilization of Enzymes on Langmuir-Blodgett Films via a Membrane-Bound Receptor. Possible Applications for Amperometric Biosensors," Adv. Mater., Vol. 3, No. 7/8, 1991, pp. 388-391.
	Jamie L. Vandenberg et al., "HERG ⁺ K channels: friend and foe," Trends Pharmacol. Sci., Vol. 22, 2001, pp. 240-246.
	Mary-Louis Roy, PH.D. et al., "HERG, Primary Human Ventricular Target of the Nonsedating Antihistamine Terfenadine," Circulation, Vol. 94, 1996, pp. 817-823.
	Keith Finlayson et al., "[³ H]Dofetilide binding to HERG transfected membranes: a potential high throughput preclinical screen," Eur. J. Pharm. Vol. 430, 2001, pp. 147-148.
	Georg C. Terstappen, "Functional Analysis of Native and Recombinant Ion Channels Using a High-Capacity Nonradioactive Rubidium Efflux Assay," Anal. Biochem., Vol. 272, 1999, pp. 149-155.
	E.M. Vaughan Williams, "Classification of anti-arrhythmic drugs," Symposium on Cardiac Arrhythmias, Elsinore, Denmark, April 23-25, 1970, pp. 449-472.
	B.N. Singh et al., "A third class of anti-arrhythmic action. Effects on atrial and ventricular intracellular potentials, and other pharmacological actions on cardiac muscle, of MJ 1999 and AH 3474," Br. J. Pharmacol, Vol. 39, August 1970, pp. 675-689.
	B.N. Singh et al., "The effect of amiodarone, a new anti-anginal drug, on cardiac muscle," Br. J. Pharmacol, Vol. 39, August 1970, pp. 657-667.

EXAMINER	DATE CONSIDERED
----------	-----------------

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

LIST OF PRIOR ART CITED BY
APPLICANT

(PTO-1449)

ATTY. DOCKET NO.
CHNT-0011P1APPLN. SERIAL NO.
10/635,010APPLICANT(S)
Arthur M. BROWN, Eckhard FICKER and
Barbara A. WIBLE

CUSTOMER NO. 34610

FILING DATE
August 6, 2003GROUP
1645

U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	*PATENT NO.	*ISSUE DATE	*INVENTOR NAME	CLASS	SUBCLASS	FILING DATE

U.S. PATENT APPLICATION PUBLICATIONS

	*PATENT APPLN. PUB. NO.	*PUB. DATE	*APPLICANT	CLASS	SUBCLASS	

U.S. PATENT APPLICATIONS

	*APPLN. NO.	*FILING DATE	*INVENTOR	CLASS	SUBCLASS	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						Yes	No

OTHER ART (Including Author, Title, Date, Pertinent Pages, Publisher, Place of Publication, Etc.)

	Koonlawee Nademanee, MD, FACC, "The Amiodarone Odyssey," J. Am. Coll. Cardiol., Vol. 20, 1992, pp. 1063-1065.
	Michael C. Sanguinetti et al., "Two Components of Cardiac Delayed Rectifier K ⁺ Current: Differential Sensitivity to Block by Class III Antiarrhythmic Agents," J. Gen. Physiol., Vol. 96, No. 1, July 1990, pp. 195-215.
	Mark E. Curran et al., "A Molecular Basis for Cardiac Arrhythmia: <i>HERG</i> Mutations Cause Long QT Syndrome," Cell, Vol. 80, No. 5, March 10, 1995, pp. 795-803.
	Jeffrey R. Balser et al., "Suppression of Time-Dependent Outward Current in Guinea Pig Ventricular Myocytes," Circ. Res., Vol. 69, No. 2, August 1991, pp. 519-529.
	Dan M. Roden, MD, "Current Status of Class II Antiarrhythmic Drug Therapy," Am. J. Cardiol., Vol. 72, No. 6, August 26, 1993, pp. 44B-49B.
	Luc M. Hondeghem, "Development of Class III Antiarrhythmic Agents," J. Cardiovasc. Cardiol., Vol. 20 Supp. 2, 1992, pp. S17-S22.
	L.M. Hondeghem, MD, PhD. et al., "Class III Antiarrhythmic Agents Have a Lot of Potential but a Long Way to Go: Reduced Effectiveness and Dangers of Reverse Use Dependence," Circulation, Vol. 81, No. 2, February 1990, pp. 686-690.

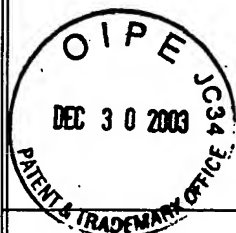
EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

LIST OF PRIOR ART CITED BY
APPLICANT

(PTO-1449)

ATTY. DOCKET NO.
CHNT-0011P1APPLN. SERIAL NO.
10/635,010

APPLICANT(S)

Arthur M. BROWN, Eckhard FICKER and
Barbara A. WIBLE

CUSTOMER NO. 34610

FILING DATE
August 6, 2003GROUP
1645

U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	*PATENT NO.	*ISSUE DATE	*INVENTOR NAME	CLASS	SUBCLASS	FILING DATE

U.S. PATENT APPLICATION PUBLICATIONS

	*PATENT APPLN. PUB. NO.	*PUB. DATE	*APPLICANT	CLASS	SUBCLASS	

U.S. PATENT APPLICATIONS

	*APPLN. NO.	*FILING DATE	*INVENTOR	CLASS	SUBCLASS	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						Yes	No

OTHER ART (Including Author, Title, Date, Pertinent Pages, Publisher, Place of Publication, Etc.)

	Tsuneaki Sadanaga, MD et al., "Clinical evaluation of the use-dependent QRS prolongation and the reverse use-dependent QT prolongation of class I and class III antiarrhythmic agents and their value in predicting efficacy," Amer. Heart Journal, Vol. 126, No. 1, July 1993, pp. 114-121.
	Nancy K. Jurkiewicz et al., "Rate-Dependent Prolongation of Cardiac Action Potentials by a Methanesulfonanilide Class III Antiarrhythmic Agent: Specific Block of Rapidly Activating Delayed Rectifier K ⁺ Current by Dofetilide," Circ. Res., Vol. 72, No. 1, January 1993, pp. 75-83.
	Bin Lu et al., "Oriented Immobilization of Fab' Fragments on Silica Surfaces," Anal. Chem, Vol. 67, No. 1, January 1, 1995, pp. 83-87.
	Atsuko Hikikoshi Iwane et al., "Myosin Subfragment-1 Is Fully Equipped with Factors Essential for Motor Function," Biophys. Biochem. Res. Commun., Vol. 230, 1997, pp. 76-80.
	Kingman Ng et al., "Engineering Protein-Lipid Interactions: Targeting of Histidine-Tagged Proteins to Metal-Chelating Lipid Monolayers," Langmuir, Vol. 11, 1995, pp. 4048-4055.
	Wolfgang Frey et al., "Two-dimensional protein crystallization via metal-ion coordination by naturally occurring surface histidines," Proc. Natl. Acad. Sci. USA, Vol. 93, No. 10, May 14, 1996, pp. 4937-4941.

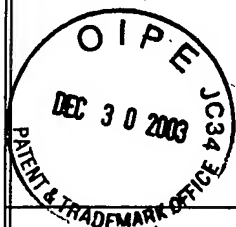
EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

LIST OF PRIOR ART CITED BY
APPLICANT

(PTO-1449)

ATTY. DOCKET NO.
CHNT-0011P1APPLN. SERIAL NO.
10/635,010APPLICANT(S)
Arthur M. BROWN, Eckhard FICKER and
Barbara A. WIBLE

CUSTOMER NO. 34610

FILING DATE
August 6, 2003GROUP
1645

U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	*PATENT NO.	*ISSUE DATE	*INVENTOR NAME	CLASS	SUBCLASS	FILING DATE

U.S. PATENT APPLICATION PUBLICATIONS

	*PATENT APPLN. PUB. NO.	*PUB. DATE	*APPLICANT	CLASS	SUBCLASS	

U.S. PATENT APPLICATIONS

	*APPLN. NO.	*FILING DATE	*INVENTOR	CLASS	SUBCLASS	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						Yes	No

OTHER ART (Including Author, Title, Date, Pertinent Pages, Publisher, Place of Publication, Etc.)

	Elizabeth W. Kubalek et al., "Two-Dimensional Crystallization of Histidine-Tagged, HIV-1 Reverse Transcriptase Promoted by a Novel Nickel-Chelating Lipid," J. Struct. Biol., Vol. 113, No. 2, September/October 1994, pp. 117-123.
	George B. Sigal et al., "A Self-Assembled Monolayer for the Binding and Study of Histidine-Tagged Proteins by Surface Plasmon Resonance," Anal. Chem., Vol. 68, No. 3, February 1, 1996, pp. 490-497.
	Michiko Furutani et al., "Novel Mechanism Associated With an Inherited Cardiac Arrhythmia: Defective Protein Trafficking by the Mutant HERG (G601S) Potassium Channel," Circulation, Vol. 99, No. 17, May 4, 1999, pp. 2290-2294.
	David B. Lewis et al., "Oxygenated Analogues of 1-[2-(Diphenylmethoxy)ethyl]- and 1-[2-[Bis(4-fluorophenyl)methoxy]ethyl]-4-(3-phenylpropyl)piperazines (GBR 12935 and GBR 12909) as Potential Extended-Action Cocaine-Abuse Therapeutic Agents," J. Med. Chem., Vol. 42, No. 24, December 1999, pp. 5029-5042.
	Aloke K. Dutta et al., "Positional Importance of the Nitrogen Atom in Novel Piperidine Analogs of GBR 12909: Affinity and Selectivity for the Dopamine Transporter," Med. Chem. Res., Vol. 3, No. 4, 1993, pp. 209-222.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.